

MONTHLY NOTICES

OF THE

ROYAL ASTRONOMICAL SOCIETY.

VOL. XLIX.

JUNE 14, 1889.

No. 8

W. H. M. CHRISTIE, M.A., F.R.S., President, in the Chair.

The following candidates were proposed as Fellows of the Society, the name of the proposer from personal knowledge being appended :—

Alfred Fowler, Demonstrator of Astronomical Physics,
Normal School of Science, South Kensington (proposed
by J. Norman Lockyer) ;

Joseph Kleiber, Privat-Docent of the University of St.
Petersburg, 53 Gr. Morskaia, St. Petersburg (proposed
by J. W. L. Glaisher) ;

David Smart, L.R.C.P., M.R.C.S., L.S.A., 108 Grange Road,
London, S.E. (proposed by W. S. Franks).

The Photographic Spectrum of the Nebula of Orion.

By Dr. W. Huggins, LL.D., D.C.L., F.R.S.

(*Extract from a letter to Mr. Knobel.*)

“By photographs I have obtained nearly thirty new lines, and, what is perhaps of most interest, is that there are at least three groups of lines in the spectra of two of the stars of the trapezium which certainly extend, some more than others, into the adjoining nebular matter, and so show that these stars are not merely optically, but truly and physically connected with

I I

the nebula. In another photograph taken a little distance from the trapezium, some of these lines appear to be absent, which suggests there may be a difference in the nebular spectrum in the *photographic region* (though not in the visible spectrum) between different parts, possibly more or less condensed, of the nebula. The bad weather prevented me from working out this point, and it is not more than a suggestion.

"The position of the brightest line which my former observations in 1864, 1871, and 1873 had fixed with great exactness, does *not* agree with that of the first line of the magnesium-flame band. I took very great pains during the winter to make a *direct comparison* of burning magnesium with the spectrum of the nebula: the result came out to confirm my early observations, and to show that the line of magnesium-flame band is *not* coincident with the line of the nebula.

"I therefore come to the provisional conclusion that so far as we know the nebula now is in a *state of gas*, though we have no knowledge of the *anterior* conditions which have brought it into this state."

The Spectrum of Uranus. By Dr. W. Huggins,
LL.D., D.C.L., F.R.S.

(*Extract from a letter to Mr. Knobel.*)

"You may like to know an interesting new result I have just got. I have succeeded by photography in solving the question of solar lines in the spectrum of *Uranus*. With an exposure of two hours I got on June 3 a fine spectrum from about F to N in the ultra-violet. On the same plate a solar spectrum is photographed for comparison. In the spectrum of the planet all the principal Fraunhofer lines are distinctly seen, and I am unable to distinguish any other lines bright or dark. It is certain, therefore, that the light of the planet, for this region of the planet at least, is *solar*.

"In 1871 I sent a paper to the Royal Society, on the visible spectrum of *Uranus*, and gave a map and measures of six dark bands. I was unable, probably on account of the feebleness of the light, to catch the solar lines. In 1872 Vogel worked on the spectrum. He observed my bands, and he also failed to see any Fraunhofer lines." The weather since has not permitted me to observe again the *visible* spectrum.

The Spectrum of Saturn.

Before last week I took a number of spectra of *Saturn* and his rings. The slit so placed that the ansæ, ball and ring crossing it, give *separate* spectra, and the planet kept so absolutely on